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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,961	11/25/2003	Marianne Ulrich Jorgensen	6297.204-US	8713

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EXAMINER

MITRA, RITA

ART UNIT PAPER NUMBER

1653

DATE MAILED: 10/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/721,961

Applicant(s)

JORGENSEN ET AL.

Examiner

Rita Mitra

Art Unit

1653

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11, 15-21 is/are pending in the application.
- 4a) Of the above claim(s) 7-9 and 18-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 10, 11, 15-17, 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                                               |                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                                   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                          | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/2/2004</u> . | 6) <input type="checkbox"/> Other: _____                                                |

## **DETAILED ACTION**

### ***Status of the Claims***

Applicants' response to office action mailed July 13, 2005, filed on August 12, 2005, is acknowledged. Applicants have elected Group I, including claims 1-11 and 15-17 and SEQ ID NO: 4. However, Applicants have not selected one residue (Xaa) to define the sequence in claims 1-11, 15-17, therefore claims 1-6, 10 and 15-17 have only been examined so far as they read on the elected SEQ ID NOs. Claims 18-20 have been withdrawn. Claims 12-14 have been canceled. New claim 21 has been added. Therefore, claims 1-6, 10, 11, 15-17 and 21 are under examination.

It was stated in the restriction requirement in the previous office action, that upon election of an invention, Applicants must also elect a single sequence for search. This is **NOT** a species election (see Remarks at page 7). For example, the SEQ ID NO: 2 of claim 1 is drawn to several sequences which differ in structure and function. Thus, while Applicants are trying to claim their invention broadly, the invention as claimed represents an improper Markush group because there is no correlation of structure and function. Each sequence is patentably distinct.

### ***Objection to the Specification***

The specification is objected to because the disclosed sequences lack a sequence identifier, for Example in the brief description of Figs. 1, 2, 7 and 8 and elsewhere in the specification e.g. page 38.

### ***Objection to the Claims***

Claims 1-10 and 15 -20 are objected because claims are drawn to a non-elected subject matter.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to

Art Unit: 1653

which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 11 and 21 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 11 and 21 encompass the subject matter that is not defined in the specification. The claims are drawn to an isolated polypeptide comprising at least one Kunitz domain, wherein the amino acid sequence comprises SEQ ID NO: 4, that inhibits the activity of trypsin.

However, Applicants have given no description of SEQ ID NO: 4 in the specification except stating at page 9 that the invention provides a polypeptide comprising SEQ ID NO: 4, SEQ ID NO: 5, SEQ ID NO: 6 or SEQ ID NO: 7. The specification describes at page 3 and page 6 that the present invention relates to novel polypeptides comprising at least one novel Kunitz domain, which can be used as protease inhibitors. Typically, the amino acid sequence is at least about 80% identical to the sequence defined by residues 5-55 of wild type human HK-18 (SEQ ID NO: 1, Fig 2). Though SEQ ID NO: 4 is listed in the sequence listing, the specification fails to provide any description of the amino acid sequence of SEQ ID NO: 4 that can be correlated with the sequence of human HK-18 of SEQ ID NO: 1, which can inhibit the activity of trypsin. Therefore, there is lack of written description as to what wild type human HK-18 sequence are required to constitute a variant that can inhibit the activity of trypsin. Claims are not defined by a structure and/or function. In addition based on open language "comprising", the claimed polypeptide can have sequences added to the N-terminal or C-terminal end and any polypeptide or peptide, having an undefined structure.

Further, the specification describes the mutants 212L-HK118-1 and 212L-HK118-2 in page 34, and in Table 4. However, the specification fails to describe any correlation of the sequence of SEQ ID NO: 4 with these mutant sequences. Further, this feature is not recited in the claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir.

Art Unit: 1653

1993). Therefore, for all these reasons the specification lacks adequate written description to demonstrate to a skilled artisan that applicant was in possession of the claimed invention.

### ***Claim Rejections – 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, 10, 11, 15-17 and 21 are rejected under 35 U.S.C. 102 (b) as being anticipated by Davis et al. (US 6180607 B1, filed August 5, 1999, issued January 30, 2001). Davis et al. teach a human serine proteinase inhibitor BTL.010, having six conserved cysteines of the Kunitz family, that exhibits greater potency towards neutral serine proteinases, such as elastase and proteinase 3 (see abstract, summary col 4-6, Example 1 in col. 16,). The reference also teaches increased activity of BTL.010 towards other proteinases such as trypsin-like proteinases, for which it shows poor potency may be obtained through production of BTL.010 variants via mutagenesis of the protein structure at the P1 residue (Ala 15) and other residues corresponding to contact sites with target proteinases, residues 11-14, 16-19 and 34-39 (see Example 2 in col.16-19). Davis's BTL.010 has 80.2% sequence identity to SEQ ID NO: 4 (see alignment result, Database: A\_Geneseq\_16Dec04, Accession NO: AAB60623). Davis's proteinase inhibitor is considered for the isolated polypeptide of instant application, wherein the amino acid sequence of the polypeptide comprises SEQ ID NO: 4 (claims 1-6, 10, 11, 15-17, 21), wherein the polypeptide detectably inhibits the activity of trypsin (claim 21). Therefore, claims 1-6, 10, 11, 15-17 and 21 of the instant application are being anticipated by Davis et al.

### ***Conclusion***

No claims are allowable.

### ***Inquiries***

Art Unit: 1653

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rita Mitra whose telephone number is 571-272-0954. The examiner can normally be reached on M-F, 10:00 am-7:00 pm.

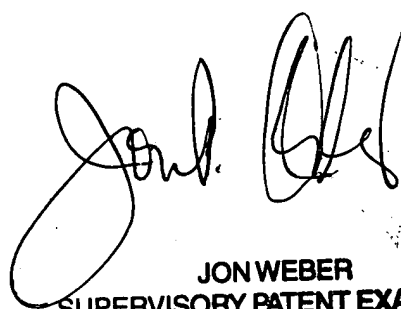
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Jon Weber can be reached on 571-272-0925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Rita Mitra, Ph.D.

September 28, 2005



**JON WEBER**  
**SUPERVISORY PATENT EXAMINER**